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miques, Geographiques, Chronologiques, & Physiques, tirees des Anciens Livres Chinois, ou faites nouvellement aux Indes, à la Chine & ailleurs, par les Pères de la Compagnie de Jesus. It consists of three Volumes, printed at Paris, 1729, 1732.

XIV. *Part of a Letter from Mr. Turberville Needham to James Parsons M. D. F.R.S. of a new Mirror, which burns at 66 Feet Distance, invented by M. de Buffon F.R.S. and Member of the Royal Academy of Sciences at Paris.*

Dear Sir,

Read April 30. 1747. **Y**OURS of *December* came so late to hand, that I could not answer it till this Occasion. **** I have been at the King's Garden, and am just returned: I there learned, that this Morning they have been trying some Experiments with a new-constructed reflecting Mirror or Mirrors with Success: I knew indeed some time ago, that they had been upon the Design; and *M. de Buffon* had acquainted me with the theoretical Part of the Whole. I had even seen a Part of it executed; but as they had not then essayed it, I would take no notice of it: In one Word, it is *Archimedes* revived; and the Credit of Antiquity, in this Point, is

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in some measure re-established. This Machine, for so I must call it, consists of 140 small plain Mirrors, each of about 4 by 3 Inches square; they are fixed at about a Quarter of an Inch Distance from each other, upon a large wooden Frame about 6 Feet square, strengthened with many cross Bars of Wood for the mounting of these Mirrors. Each of them have three moveable Screws, which the Operator commands from behind, so contrived, that the Mirror can be inclined to any Angle in any Direction that meets the Sun; and by this means the solar Image of each Mirror is made to coincide with all the rest.

There are in all, as I told you, 140 Mirrors; but they tried the Experiment this Morning with 24 only; for so many, and no more, were then ready for the Purpose: The Effect was, that, in very few Seconds of Time, a combustible Matter they had prepared with Pitch and Tow, daubed upon a Deal-Board, was set on Fire, and burn'd vigorously at the Distance of threescore and six *French* Feet. Judge now of the Effect 140 will produce; and whether the Invention may not be improved to the Height of all that has been advanced of *Archimedes* by the Ancients. The only Difficulty they found was, to make the solar Images of the Mirrors coincide; but this is owing to the yet Imperfection of their Method of mounting, which may be easily improved.

The Dimensions I have given in of the Mirrors and Frame were only guessed at from View, for I have not measur'd them; so you must not expect they will square or tally mathematically in the utmost Rigour, Nor indeed did I think it necessary

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to do any more; for the Dimensions of themselves are purely arbitrary. If you have a clear Idea of the Construction of the Machine by this general Description, it is all I have aimed at.

XV. *Extract of a Letter from the Marquis Nicolini F. R. S. to the President, concerning the same Mirror burning at 150 Feet Distance.*

S I R,

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Read April 30. 1747. YOU know that the Affair of *Archimedes* setting the *Roman* Fleet on Fire by means of Burning Glasses, has been look'd upon as a Thing impossible and romantic. *Descartes* positively denied the Fact, which had been believed for so many Ages; and our modern Philosophers, after many Trials, and various Reasonings, have been of the same Opinion. But M. *de Buffon*, being asked if it might be possible to invent a *Phaometer*, or *Mackine* for measuring the *Intensity* of *Light*, hath discovered by Trial, that *Light* was able to produce great Effects in a *Focus* at a great Distance, if one made use of a great Number of Disks, which would reflect so many Images of the Sun, and fling them all into one Place. He put together therefore a sort of *Polyedron*, consisting of 168 small Mirrors, or flat Pieces of Looking-glass, each 6 Inches square; by means of which, with the faint Rays of the Sun, in the Month of *March*, he set on Fire some Boards
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